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ABSTRACT

To ascertain whether impulsive responding in behavior disordered adolescents is amenable to change, 15-year-old normal and "acting-out" behavior disordered adolescents participated in an experiment designed to alter Kagan's Matching Familiar Figures Test (MFF) scores through a modeling psychoeducational procedure. No significant differences occurred on the MFF latency or MFF error measures as a function of the modeling psychoeducational treatment in either the normal or behavior disordered adolescents. While the present study failed to confirm the efficacy of a modeling psychoeducational treatment procedure in altering either MFF error or MFF latency measures among any of the adolescent groups, this finding suggested that specific instructional strategies are necessary, in addition to a modeling treatment in altering cognitive style in adolescents. (Author)

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IMPULSIVITY AND MODELING IN NORMAL AND BEHAVIOR DISORDERED ADOLESCENTS

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Impulsivity and Modeling in Normal and Behavior Disordered Adolescents

One of the behaviors characteristic of hyperactive behavior disordered children, and one which is in greatest need of regulation, is impulsivity (Douglas, 1976). Keogh (1971) in fact, stated that hyperactive children actually represent extreme examples of impulsive children described by Kagan (1965, 1966) because they make decisions too rapidly, fail to pause to consider possible alternatives, fail to reflect on possible consequences of a decision, and seize on the first response that comes to mind.

Because of its debilitating effects in thwarting the child's efforts to adjust to the requirements of the classroom, impulsivity is one of the behaviors in greatest need of regulation. Epstein, Hallahan, and Kauffman (1975) suggested the modification of impulsive behavior is important to academic success because an impulsive disposition generalizes to many cognitive tasks and influences faulty performance. Furthermore, they suggested that impulsivity results in a social handicap. As Kagan (1966) pointed out, "Most teachers do not have a high tolerance for incorrect replies, and the peer group is prone to jeer at the child who impulsively blurts out obviously incorrect answers" (p. 359).

One measure of impulsivity that has been consistently used for studying hyperactive children is the Matching Familiar Figures Test (MFF) designed by its author Jerome Kagan (Kagan, Rosman, Day, Albert, & Phillips, 1964) to measure the cognitive style impulsivity-reflectivity. This test consists of twelve tasks. Each task contains one stimulus picture and a separate

array of six pictures, one of which is identical to and five of which are variations of the stimulus picture. The child is required to select the identical picture. He is allowed to select pictures from the array until he selects the identical one. His errors are recorded and the time it takes for him to make the first response (latency) is recorded. Errors and latency scores are averaged over the twelve tasks. The child thus receives two scores: error and latency. Both scores are considered in the assessment of reflection-impulsivity. In a number of studies, the MFF has been shown to differentiate hyperactive children of various ages from control children (Brown & Quay, 1977; Campbell, Douglas, & Morgenstern, 1971; Cohen, Weiss, & Minde, 1972; Rapoport, Quinn, Bradbard, Riddle, & Brooks, 1974; Schleifer, Weiss, Cohen, Elman, Cvjic, & Kauger, 1973).

One approach which has been prevalent in the treatment of behavior disordered hyperactive children is an attack upon the impulsivity with the use of drug therapy. In fact, the impulsivity measures on the MFF reported by many investigators (Campbell et al., 1971; Cohen et al., 1972; Rapoport et al., 1974; Schleifer et al., 1975) proved to be influenced by active psycho-stimulants. Although a plethora of research has attested to the effectiveness of stimulant drug therapy, (see review by Barkley, 1976), possible hazards and side effects have been described (Safer & Allen, 1975; Werry & Sprague, 1970). Thus, the identification of a behavioral psycho-educational procedure for regulating the impulsivity in hyperactive behavior disordered children is necessary for avoiding the possible side effects of drug therapy.

For normal children having impulsive dispositions, the modification of impulsive responding has been demonstrated by the use of cognitive and behavioral psychoeducational procedures. Several modeling procedures (Debus, 1970; Ridberg, Parke, & Hetherington, 1971), a reinforcement technique (Denny, 1973), and the training of teachers to be more reflective so that they could serve as reflective models (Yando & Kagan, 1968) have been demonstrated to modify impulsive responding in normal children. Palkes, Stewart, and Kahana (1968) also demonstrated that hyperactive children can be trained to respond less impulsively to the Porteus mazes.

Although several methods for changing impulsive behavior have been suggested, modeling is the method which has repeatedly been employed and has been demonstrated to be successful for impulsive children from normal populations. For example, several investigators have found that impulsive children from normal populations became more reflective after observing reflective models (Debus, 1970; Ridberg, Parke, & Hetherington, 1971; Yando & Kagan 1968).

Studies of the influence of modeling on Matching Familiar Figures Test (MFF) scores of children diagnosed as hyperactive have not been conducted. However, Siegelman (1968) and Drake (1970), through their work with normal children, have provided valuable clues about the types of strategies that impulsive children can be taught through the process of modeling. They suggested that impulsive and reflective normal children use different search strategies in their responding to the Matching Familiar Figures Test. That is, reflective children tend to scan stimulus details, while impulsive children tend to view only the global picture. That training in the area of

attention-maintaining behavior is necessary for the modification of cognitive styles has been suggested by Siegelman (1969), since the MFF test requires attention to stimulus details (Heider, 1971; Kagan, 1965; Kagan, 1966; Kagan, Rosman, Day, Albert, & Phillips, 1964). Meichenbaum and Goodman (1969) successfully employed a modeling procedure in which they taught impulsive children from a normal population to verbalize various problem solutions such as planning ahead, stopping to think, being careful, and correcting errors calmly.

Modeling has also been effective in modifying other behavior disorders such as social withdrawal (O'Conner, 1969), aggression (Fechtner, 1971), and speech disorders (Dykman, Ackerman, Clements, & Peters, 1971). These previous findings have suggested that modeling may be an effective procedure for changing the impulsive responding of hyperactive adolescents.

Thus, extensive research indicating that impulsive responses to the MFF may be changed permits the acceptance of modeling as a behavior change strategy for normal children,and adolescents. However, the effectiveness of modeling in changing impulsive behavior in hyperactive behavior disordered children has not been demonstrated, although modeling has been demonstrated to be effective with other disorders found in children (Csapo, 1972; Fechter, 1971; O'Connor, 1969).

The major purpose of the present study was to compare the effect of modeling on impulsive responding in normal and behavior disordered hyperactive adolescents in order to ascertain whether impulsive responding in behavior disordered adolescents are amenable to change through modeling.

Method

Subjects

Subjects were twenty-five normal adolescent tenth-grade males and twenty-five behavior disordered tenth grade males. Of these two groups, fifteen in each served in the treatment condition, while ten adolescents in each group served as controls. The behavior disordered group consisted of males from a nearby residential treatment center. The behavior disordered adolescents were described as hyperactive and impulsive by their attending psychiatrists. All children in this study were from middle class families.

The mean ages and SES for the two groups of children were similar. The adolescent must have had an IQ of at least 85 to participate in the study.

Modeling Films

A procedure similar to that used by Ridberg, Parke, and Hetherington (1971) was employed. A seven-minute videotape was prepared showing a 16 year-old white male responding to MFF items in a reflective manner. The model's verbalization stressed: (a) responding slowly, (b) avoiding selecting the first figure that appears correct, without checking the remaining stimuli, and (c) a description of the strategy (e.g. the model described how he checks back with the comparison standard frequently.) The model also used a scanning strategy whereby he pointed to the standards then carefully to the other stimuli and compared them with each other and with the standard before arriving at a decision.

Procedure

All subjects were tested individually in two sessions. In the initial session, all subjects were given standard instructions. In the second session,

two weeks later, experimental subjects were presented the videotape of the model and were subsequently retested on the MFF using instructions developed by Ridberg et al. (1971). For the adolescents in the control condition, all pre- and post- measures presented to the adolescents in the modeling condition were administered. No modeling treatment was administered to the control subjects.

Results

The means and standard deviations for the four groups on the pre- and post-MFF error and MFF latency scores are presented in Table 1.

Insert Table 1 about here

To assure equality between groups before treatment, a 2(Behavioral Condition) x 2(Treatment Condition) multivariate analysis of variance comparing the MFF error and latency pre-test measures was performed on the dependent measures. This MANOVA was not significant for either the behavioral condition or for the treatment condition. Thus, there were no initial between group differences.

A 2(Behavioral Condition) x 2(Treatment Condition) multivariate analysis of variance comparing the MFF error and latency gain scores was performed on the data to ascertain whether differences occurred between the groups as a function of the modeling treatment. This analysis indicated that there were no significant differences between the groups for behavioral condition, $F(1, 46) = .27$, and for treatment condition $F(1, 46) = .30$. Therefore, no separate univariate statistics were performed on the dependent measures.

Table 1

Means and Standard Deviations for Pre and Post-MFF Latency and MFF Error Scores of Normal and Behavior Disordered Adolescents

	Pre-Test Measures				Post-Test Measures			
	Latency		Error		Latency		Error	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Normal								
Experimental n = 15	142.20	105.72	6.13	2.62	142.47	43.46	2.93	3.09
Control n = 10	115.20	66.62	7.40	3.89	116.50	46.36	4.50	2.17
Disordered behavior								
Experimental n = 15	157.13	68.70	6.53	3.87	173.93	90.99	3.20	3.57
Control n = 10	117.80	58.01	8.20	4.10	129.60	62.54	6.00	3.50

Discussion

Although some differences were obtained on the MFF error measure, no significant differences occurred between any of the groups on the MFF latency and error measure as a function of the modeling treatment. Although the finding of no significant differences among both normal and behavior disordered subjects for both latency and error measures may be interpreted to suggest that the efficacy of modeling for adolescents is dubious, a more plausible explanation, found in previous research (Meichenbaum & Goodman, 1971) is that the cognitive modeling procedure serves as a necessary but not sufficient condition for altering impulsive responding. Meichenbaum and Goodman (1971) in fact have concluded, "While a treatment condition of cognitive modeling alone slowed down a child's performance (latency) it did not reduce errors." Thus, the present finding may be interpreted to suggest that modeling procedures may be insufficient for engendering reflection among impulsive adolescents. It appears that exposure to a reflective model is inadequate as a sole psychoeducational training procedure because it fails to provide the opportunity for behavioral rehearsal in self-instruction. Bergin (1967) further underscores the primacy of the self-instructional training procedures in altering such self-regulatory deficits as impulsivity in behavior disordered hyperactive children. Given the assumption that behavioral rehearsal is of import in cognitive modification, a training procedure that demands self-instruction, coupled with the subjects' observations of a reflective model employing the scanning strategy, may function as a more effective approach in the instructing of adolescence to "stop, look, and listen" before responding. Used singularly, the modeling treatment approach presented in this study appears to be too nebulous to modify impulsive responding.

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Footnotes

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